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Complexity of ambulatory care visits of patients with diabetes as reflected by diagnoses per visit



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ABSTRACT

Aims: As the proportion of people with multiple chronic conditions grows, so does the complexity of patient care. Although office-based visits to subspecialists are expected to be intense, due to the focused nature of the visit, the complexity of office-based visits to primary care physicians has yet to be explored in depth. To explore complexity, we looked at diabetes as a case study to determine whether and how the complexity of office-based visits varies by physician specialty type, as measured by the number of diagnoses reported per visits.

Methods: The Medical Expenditure Panel Survey data is used to create a nationally-representative sample of adults who self-report a diabetes diagnosis, the specialty of the treating physician for their care, and the number of diagnoses for each visit. Using cross tabulations, the distribution of office-based visits are analyzed based on a categorization of patients by number of visit diagnoses, number of conditions reported, and type of physician seen.

Results: Almost 80 percent of visits made by adults with diabetes to subspecialist involved care for that single diagnosis; while 55 percent of visits to primary care involved care for at least one additional diagnosis. Almost 70 percent of visits in which only one diagnosis was reported were to subspecialist physicians. Almost 90 percent of visits in which four diagnoses were reported were to primary care physicians.

Conclusions: Office-based visits to primary care physicians are made increasingly complex by growing population morbidity. Adults with diabetes report more conditions being cared for per visit with primary care physicians than with subspecialty physicians. Future studies into where our results hold for other chronic conditions would be beneficial. As recent United States legislation moves health care payment toward paying for value and population health, encounter complexity should be accommodated.

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Abbreviations: MEPS, Medical Expenditure Panel Survey; ICD-9, International Classification of Diseases, Ninth Revision.

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1. Introduction

A relatively large and growing number of Americans have multiple chronic conditions. In 2010, 21 percent of adults between 45 and 64 years old and 45 percent of those over 65 had multimorbidity, two or more chronic conditions [1]. From 2000 to 2010 the prevalence of multimorbidity increased by 22 percent and 25 percent in these two age groups, respectively. With 29.1 million (9.3%) Americans diagnosed with diabetes in 2012, diabetes is one of the most prevalent chronic conditions in the United States [2]. Diabetes provides an ideal case study to examine issues surrounding the treatment of multimorbidity in the United States' healthcare system.

The recent increase in patient multimorbidity presents the potential for an increase in the number of issues addressed during a patient's ambulatory care visit to a physician. The complexity of a visit to a subspecialist physician is well understood, even presumed, due to the additional focal training of the clinician. In contrast, there is a limited understanding or appreciation of complexity in the primary care encounter. The latter results from a combination of factors, addressing uncertainty and the whole patient among them.

Although little has been written about the difference in volume of conditions managed between the subspecialist and the primary care encounter, there is evidence that primary care is linked to better health outcomes and lower costs. Specifically, research has shown that areas with a higher supply of primary care physicians have lower rates of mortality and a more effective delivery of preventive care [3-5]. Additionally, as the move toward value based payment has accelerated, the scope of practice for primary care clinicians has decreased [6], in part due to pressure to maximize efficiency. Payment changes have also resulted in a decrease in the income earned by primary care clinicians [7].

Understanding the complexity physicians face in treating their patients is an important aspect of care for policy makers to consider when weighing how to implement the recently enacted Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) legislation. MACRA moves Medicare's quality reporting programs into a new single "Merit-Based Incentive Payment System" (MIPS) program to streamline payments to physicians who provide high-quality, high-value health care. Additionally, MACRA provides incentives and benefits for physicians participating in Alternative Payment Models that that pay for value based on the quality measures in the MIPS.

As policymakers scope how MACRA will be implemented and determines which measures will included in the MIPS, it is important to consider the differences in visit outcomes, quality of service, severity, or demand for service by clinician specialty. Understanding the different ways that complexity of a visit can be measured offers valuable insights into avenues to address the inadequacies of the current payment system. Therefore, it is important to characterize the care that various practitioners are providing in the outpatient setting.

Using individual self reported data from the 2008 to 2010 Medical Expenditure Panel Surveys – Household Component (MEPS-HC), we characterized office visits for adults aged 18 and older who reported receiving care for diabetes in the year of the survey. Overall, we hypothesize that primary care

physicians were more likely to address multiple diagnoses during a single office visit. Although subspecialists are expected to treat patients with multiple chronic conditions, we hypothesize that the patient will only report one diagnosis for their visits to subspecialists. Current efforts that attempt to pay for health care based on the encounter complexity take into account the complexity of the patient, and not the complexity of the encounter itself. To the extent that the number of diagnoses addressed during a visit is a proxy for complexity, there may be grounds to argue that primary care physicians, by virtue of the breadth of their training, are uniquely capable of providing complex care for patients with multimorbidity.

2. Methods

We examine the distribution of office visits for adults aged 18 and over across physician type for those adults with at least one visit to address their diabetes using a pooled cross-sectional sample of adults in the 2008-2010 Medical Expenditure Panel Surveys – Household Component (MEPS-HC) surveys [8]. MEPS-HC is a nationally representative household survey of the civilian, non-institutionalized United States population that is conducted annually. Using overlapping panel design techniques, MEPS-HC respondents were interviewed five times over a 2½ year period. Thus when pooling years of data each observation is considered a person-year record, with most respondents appearing in the data twice.

Each respondent is asked to give information on all of their medical visits in the past year. Information recorded about visits to office-based providers includes the type of provider seen, the specialty of the provider, and the reason for the visit. The MEPS-HC only records up to four reasons for each visit. As the focus of our question is on chronic conditions, versus acute, for each respondent the number of distinct chronic conditions reported in a year is calculated using the ICD-9 diagnosis information available for each office visit. Based on the work of Goodman and colleagues [9], the following 19 conditions were classified as chronic: asthma, chronic kidney disease, dementia (including Alzheimer's and other senile dementias), cancer (all except non-melanoma skin cancer), hypertension, congestive heart failure, hyperlipidemia, arthritis, chronic obstructive pulmonary disease, depression, osteoporosis, schizophrenia, diabetes (non-gestational), autism, coronary heart disease, stroke, hepatitis, HIV, and substance abuse disorders.

Adults who were treated for diabetes at any visit in the reference year were flagged as a patient with diabetes. No distinction was made between type 1 and type 2 diabetes as patients were not expected to distinguish between the types when reporting their reason for the visit. The analysis was restricted to adults as parents are more likely to report that their child visited a pediatrician than a family physician, potentially affecting the results. Additionally, children are less likely to have a diabetes diagnosis or multiple chronic conditions. Patients with diabetes are categorized into multimorbidity categories of (1) diabetes diagnosis with no additional chronic conditions, (2) with 1 additional condition, (3) with 2-4 additional condition, or (4) with 5 additional conditions. Using the diagnoses for each office visits, each visit

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